

Application No. 10/047,545
Amendment dated January 27, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-153. (cancelled)

154. (currently amended) An interbody spinal fusion implant for insertion within an implantation space formed across the height of a disc space between adjacent vertebral bodies of a human spine, said implant comprising:

a body having a leading end for insertion first into the disc space, a trailing end opposite said leading end, a central longitudinal axis therebetween, and a length along the central longitudinal axis, said body having; opposed arcuate portions between said leading and trailing ends adapted to be placed within the implantation space oriented toward the adjacent vertebral bodies, respectively, said opposed arcuate portions having at least one opening therethrough, said openings being in communication with one another to permit for the growth of bone from adjacent vertebral body to adjacent vertebral body through said implant, said body having; at least one truncated side along at least a portion of the central longitudinal axis between said opposed arcuate portions and between said leading and trailing ends; and

a thread along at least a portion of the length of said body adapted to engage said implant to the adjacent vertebral bodies, said thread having a thread height measured from said body which is greatest at said at least one truncated side, said at least one truncated side having a truncated portion between said thread and said leading end.

155. (previously presented) The spinal fusion implant of claim 154, wherein said opposed arcuate portions are in an angular relationship to each other along at least a portion of the length of said implant sufficient to maintain the adjacent vertebral bodies in an angular relationship to each other.

Application No. 10/047,545
Amendment dated January 27, 2006

156. (previously presented) The spinal fusion implant of claim 155, wherein said implant is configured to be inserted from a posterior approach to the vertebral bodies.
157. (previously presented) The spinal fusion implant of claim 155, wherein said implant is configured to be inserted from an anterior approach to the vertebral bodies.
158. (previously presented) The spinal fusion implant of claim 154, wherein each of said opposed portions comprises an interior surface, said interior surfaces being spaced apart to define a hollow interior in communication with said openings.
159. (previously presented) The spinal fusion implant of claim 158, wherein said implant includes an access opening for accessing said hollow interior.
160. (previously presented) The spinal fusion implant of claim 159, wherein said access opening is configured to permit introduction of a fusion promoting substance into said hollow interior.
161. (previously presented) The spinal fusion implant of claim 159, further comprising a cap for closing said access opening.
162. (previously presented) The spinal fusion implant of claim 154, wherein said body has a second truncated side along the central longitudinal axis and opposite to said one truncated side.
163. (previously presented) The spinal fusion implant of claim 154, further in combination with a fusion promoting substance.
164. (previously presented) The spinal fusion implant of claim 163, wherein said fusion promoting substance is bone morphogenetic protein.
165. (previously presented) The spinal fusion implant of claim 163, wherein said fusion promoting substance includes hydroxyapatite.
166. (previously presented) The spinal fusion implant of claim 163, wherein said fusion promoting substance includes hydroxyapatite tricalcium phosphate.
- Claim 167. (cancelled)

Application No. 10/047,545
Amendment dated January 27, 2006

168. (previously presented) The spinal fusion implant of claim 163, wherein said fusion promoting substance is bone.
169. (previously presented) An interbody spinal fusion implant for insertion across a disc space between adjacent vertebral bodies of a human spine, said implant comprising a body having a substantially cylindrical configuration, a longitudinal central axis and at least one truncated side forming a planar surface parallel to said central axis, said body having an insertion end, a trailing end, and an outer surface including a thread for engaging said implant to the adjacent vertebral bodies of the spine, the locus of said thread forming a substantially cylindrical configuration.
170. (previously presented) The spinal fusion implant of claim 169, wherein said implant comprises a bone ingrowth material.
171. (previously presented) The spinal fusion implant of claim 169, wherein said implant comprises a fusion promoting material.
172. (previously presented) The spinal fusion implant of claim 169, wherein said implant is at least in part bioabsorbable
173. (previously presented) The spinal fusion implant of claim 169, having a plurality of openings capable retaining fusion promoting material.
174. (previously presented) The spinal fusion implant of claim 169, wherein said thread has a thread radius measured from the longitudinal central axis of said implant, said thread radius being substantially uniform for at least a portion of said implant.
175. (previously presented) The spinal fusion implant of claim 169, wherein said thread has a thread radius measured from the longitudinal central axis of said implant, said thread radius being variable along at least a portion of said implant.
176. (previously presented) The spinal fusion implant of claim 169, wherein said thread has a thread height measured from said body which is variable along at least a portion of said implant.

Application No. 10/047,545
Amendment dated January 27, 2006

177. (previously presented) The spinal fusion implant of claim 169, wherein said thread has a thread height measured from said body which is substantially constant along the length of said implant.
178. (previously presented) The spinal fusion implant of claim 169 body comprises a porous material.
179. (previously presented) The spinal fusion implant of claim 169, wherein said body has an internal chamber and means for accessing said internal chamber.
180. (previously presented) The spinal fusion implant of claim 179, wherein said internal chamber is capable of containing fusion promoting material.
181. (currently amended) The spinal fusion implant of claim 179, wherein said internal chamber includes a wall surrounding said internal chamber.
182. (currently amended) The spinal fusion implant of claim ~~181~~¹⁷⁹, wherein said wall has a plurality of openings passing therethrough in communication with said internal chamber.
183. (previously presented) The spinal fusion implant of claim 179, wherein said implant has means for closing said accessing means.
184. (previously presented) The spinal fusion implant of claim 169, wherein one of said ends includes an engagement means for engaging instrumentation for the insertion of said implant.
185. (previously presented) The spinal fusion implant of claim 169, wherein at least a portion of said outer surface comprises wells having at least partial walls.
186. (previously presented) The spinal fusion implant of claim 169, wherein said implant is configured to be placed in close proximity in a side by side alignment to a second spinal fusion implant, said first and second implants when placed together having a combined overall width that is less than the sum of the individual maximum diameters of each of said first and second implants.
187. (previously presented) The spinal fusion implant of claim 169, wherein said body has a second truncated side forming a planar surface parallel to said central axis and opposite to said one truncated side.

Application No. 10/047,545
Amendment dated January 27, 2006

188. (previously presented) The spinal fusion implant of claim 187, wherein said thread has a thread height measured from said body which is greatest at at least one of said truncated sides.
189. (previously presented) The spinal fusion implant of claim 169, wherein said thread has a thread height measured from said body which is greatest at said truncated side.
190. (previously presented) The spinal fusion implant of claim 169, wherein said implant has an upper and lower portion for engaging the bone of the adjacent vertebral bodies, said upper and lower portions comprising a plurality of macroscopic openings.
191. (previously presented) The spinal fusion implant of claim 169, wherein said body has a plurality of openings passing therethrough so as to allow bone to grow from adjacent vertebral body to adjacent vertebral body and through said implant.
192. (previously presented) The spinal fusion implant of claim 169, wherein said implant is made of a material that is stronger than bone.
193. (previously presented) The spinal fusion implant of claim 169, in combination with a fusion promoting substance.
194. (previously presented) The spinal fusion implant of claim 193, wherein said fusion promoting substance includes at least one of bone, bone morphogenetic protein, hydroxyapatite, and hydroxyapatite tricalcium phosphate.
195. (new) An interbody spinal fusion implant for insertion within an implantation space formed across the height of a disc space between adjacent vertebral bodies of a human spine, said implant comprising:

a body having a leading end for insertion first into the disc space, a trailing end opposite said leading end, a mid-longitudinal axis through said leading and trailing ends, and opposed arcuate portions between said leading and trailing ends adapted to be placed within the implantation space oriented toward the adjacent vertebral bodies, respectively, said opposed arcuate portions having at

Application No. 10/047,545
Amendment dated January 27, 2006

least one opening therethrough, said openings being in communication with one another to permit for the growth of bone from adjacent vertebral body to adjacent vertebral body through said implant; and

a thread adapted to engage said implant to the adjacent vertebral bodies, said thread having a thread height measured from said body, said thread height being variable along more than one turn of said thread about the mid-longitudinal axis of said body.

196. (new) The spinal fusion implant of claim 195, wherein said implant is at least in part bioabsorbable
197. (new) The spinal fusion implant of claim 195, wherein each of said arcuate portions include a plurality of openings therein.
198. (new) The spinal fusion implant of claim 195, wherein said body has an internal chamber and means for accessing said internal chamber.
199. (new) The spinal fusion implant of claim 198, wherein said internal chamber is capable of containing fusion promoting material.
200. (new) The spinal fusion implant of claim 198, wherein internal chamber said includes a wall surrounding said internal chamber.
201. (new) The spinal fusion implant of claim 200, wherein said wall has a plurality of openings passing therethrough in communication with said internal chamber.
202. (new) The spinal fusion implant of claim 198, wherein said implant has means for closing said accessing means.
203. (new) The spinal fusion implant of claim 195, wherein one of said ends is configured to engage instrumentation for the insertion of said implant.
204. (new) The spinal fusion implant of claim 195, wherein said implant is configured to be placed in close proximity in a side by side alignment to a second spinal fusion implant, said first and second implants when placed together having a combined overall width that is less than the sum of the individual maximum diameters of each of said first and second implants.

Application No. 10/047,545
Amendment dated January 27, 2006

- 205. (new) The spinal fusion implant of claim 195, wherein said body has a first truncated side forming a planar surface parallel to the mid-longitudinal axis
- 206. (new) The spinal fusion implant of claim 205, wherein said body has a second truncated side forming a planar surface parallel to the mid-longitudinal axis and opposite to said first truncated side.
- 207. (new) The spinal fusion implant of claim 206, wherein said thread has a thread height measured from said body which is greatest at at least one of said truncated sides.
- 208. (new) The spinal fusion implant of claim 205, wherein said thread has a thread height measured from said body which is greatest at said first truncated side.
- 209. (new) The spinal fusion implant of claim 195, wherein said implant is made of a material that is stronger than bone.
- 210. (new) The spinal fusion implant of claim 195, in combination with a fusion promoting substance.
- 211. (new) The spinal fusion implant of claim 210, wherein said fusion promoting substance includes at least one of bone, bone morphogenetic protein, hydroxyapatite, and hydroxyapatite tricalcium phosphate.
- 212. (new) The spinal fusion implant of claim 195, wherein said thread has a variable height along each turn of said thread about the mid-longitudinal axis of said body.
- 213. (new) The spinal fusion implant of claim 195, wherein said thread is uninterrupted.
- 214. (new) The spinal fusion implant of claim 195, wherein an outer locus of said thread has a substantially cylindrical configuration.
- 215. (new) The spinal fusion implant of claim 195, wherein said body has a substantially cylindrical configuration.
- 216. (new) The spinal fusion implant of claim 195, wherein said thread has a pitch, further comprising a second thread around the mid-longitudinal axis of said body, said second thread having a pitch that is different than the pitch of said thread.

Application No. 10/047,545
Amendment dated January 27, 2006

- 217. (new) The spinal fusion implant of claim 216, wherein said second thread is adapted to engage an associated thread of an implant cap.
- 218. (new) The spinal fusion implant of claim 216, wherein said second thread is adapted to engage an associated thread of an implant inserter tool.